

CLAIMS

1. An isolated nucleotide sequence comprising a coding sequence which comprises
- 5 (i) a sequence coding for the promoter activity-regulating polypeptide OrfY as defined herein;
- (ii) a sequence coding for a polypeptide that is at least 15% identical to the sequence of (i)
- 10 and that has at least part of the promoter activity-regulating activity of the OrfY polypeptide;
- (iii) a fragment of (i) or (ii) that codes for a fragment of the polypeptide OrfY that has at least part of the promoter activity-regulating activity of the OrfY polypeptide; or
- 15 (iv) a sequence that is complementary to any of (i) to (iii).
2. A nucleotide sequence according to claim 1 comprising, as the coding sequence, a sequence which includes:
- 20 (i) *orfY* as shown in Table 2; or
- (ii) a fragment thereof that codes for a polypeptide having at least part of the promoter activity-regulating activity of the intact OrfY polypeptide .
- 25 3. A nucleotide sequence according to claim 1 or 2 further comprising a promoter sequence the activity of which is regulatable by the OrfY polypeptide, the polypeptide that is at least 15% identical with OrfY, or a fragment thereof having at least part of the promoter activity-regulating activity of the intact OrfY polypeptide.
- 30 4. A nucleotide sequence according to claim 1 comprising a promoter regulating the expression of any of the coding sequences (i) to (iv) of claim 1 or the coding sequences (i) or (ii) of claim 2.

5. A nucleotide sequence according to claim 4 where the promoter regulating the expression of said coding sequences is a promoter not naturally associated with said sequences.

5 6. A vector comprising the nucleotide sequence of claims 1 or 2

7. A vector according to claim 6 which comprises a plasmid, a bacteriophage, a transposable element or a cosmid.

10 8. A cell transformed with the nucleotide sequence of claims 1 or 2 or the vector of claim 6.

9. A cell according to claim 8 which comprises a bacterial cell, a fungal cell, a yeast cell, a plant cell, an animal cell or a human cell.

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10. A cell according to claim 9 which is a bacterial cell comprising lactic acid bacterial species.

11. A cell according to claim 10 which is of a *Lactococcus* species.

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12. A method of regulating in a cell the activity of a promoter sequence, the activity of which is regulatable by the OrfY polypeptide or a polypeptide that is at least 15% identical with OrfY and having at least part of the promoter activity-regulating activity of OrfY, or a fragment thereof having at least part of the promoter activity-regulating activity of the
 25 intact OrfY polypeptide, the method comprising inserting into the cell the nucleotide sequence of claim 1 or 2 and combining it with appropriate expression signals to permit the expression of the coding sequence of said sequence, resulting in the production of an OrfY polypeptide, a polypeptide being at least 15% identical herewith, or a fragment thereof having at least part of the promoter activity-regulating activity of the OrfY

30 polypeptide.

13. A method according to claim 12 wherein the promoter sequence is a promoter sequence naturally occurring in the cell.

14. A method according to claim 13 wherein the promoter sequence is a sequence not naturally occurring in the cell.

15. A method according to claim 14 wherein the promoter sequence is of lactic acid bacterial origin.

16. A method according to claim 15 wherein the promoter sequence is P170 as described hereinbefore.

17. A method according to claim 12 wherein the promoter sequence comprises a regulatable promoter or a constitutive promoter.

18. A method according to claim 17 wherein the promoter sequence in the cell is a regulatable promoter regulated by a factor comprising pH, the growth temperature, the oxygen content, a temperature shift eliciting the expression of heat shock genes, the composition of the growth medium including the ionic strength/NaCl content, the presence/absence of essential cell constituents or precursors therefor, accumulation of a metabolite intracellularly or in the medium, the growth phase of the cell or the growth rate of the cell.

19. A method according to claim 18 wherein the cell is the cell of any of claims 8-11.

20. A method according to claim 12 wherein the activity of the promoter sequence is enhanced by the OrfY polypeptide or the fragment thereof.

21. A method of producing a desired gene product, the method comprising constructing a cell that comprises the nucleotide sequence of any of claims 1 or 2 or the vector of claim 6, and a sequence coding for the desired gene product, said coding sequence is under the control of a promoter, the activity of which is regulatable by the OrfY polypeptide or a polypeptide that is at least 15% identical with OrfY, or a fragment thereof having at least part of the promoter activity-regulating activity of OrfY, cultivating the cell under conditions where both of (i) the sequence coding for the OrfY polypeptide or a polypeptide that is at least 15% identical with OrfY, or the fragment thereof having at least part of the promoter activity-regulating activity of the intact OrfY polypeptide and (ii) the sequence coding for

the desired gene product are expressed, and harvesting the resulting cells or the gene product.

22. A method according to claim 21 wherein the expression of the sequence coding for the OrfY polypeptide or the fragment thereof results in an enhancement of expression of the desired gene product.

23. A method according to claim 22 wherein the cell includes a bacterial cell, a fungal cell, a yeast cell, a plant cell, an animal cell or a human cell.

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24. A method according to claim 23 wherein the cell is a bacterial cell comprising lactic acid bacterial species.

25. A method according to claim 24 wherein the cell is of a *Lactococcus* species.

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26. A method according to claim 25 wherein the promoter sequence is a promoter sequence as defined in claim 13.

27. A method of manufacturing a food product or a feed product comprising:

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culturing the food product or the feed product in a composition comprising a starter culture which includes a cell according to claim 8.

28. A method of manufacturing a pharmaceutically active product comprising:

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formulating the pharmaceutically active product with a composition which includes a cell according to claim 8.

29. A method of delivering a biologically and/or pharmaceutically active gene product

30 comprising:

inserting the biologically and/or pharmaceutically active gene product into a cell according to claim 8.

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